



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,209	03/24/2004	Satoshi Hiranuma	SANA:007	3920
ROSSI & ASSOCIATES P.O. Box 826 Ashburn, VA 20146-0826			EXAMINER TRAN, DIEM T	
			ART UNIT 3748	PAPER NUMBER
DATE MAILED: 11/16/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/808,209

Applicant(s)

HIRANUMA ET AL.

Examiner

Diem Tran

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8-13 is/are rejected.
- 7) ☐ Claim(s) 5-7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claims 1-4, 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara (JP 07-034858) in view of Hepburn et al. (US Patent 6,813,882).***

Regarding claims 1, 10-13, Uehara discloses an exhaust gas purifying system comprising: a filter disposed in said exhaust passage to collect a particulate matter contained in the exhaust gas; a regeneration start determining means for determining a regeneration start of said filter (see page 5, paragraphs [0032,0033]); a regenerator means for regenerating said filter; an oxygen mass flow rate detecting means for detecting or calculating a mass flow rate oxygen fed to said filter; and a regeneration end determining means for determining a regeneration end of said filter in accordance with information provided from said oxygen mass flow rate detecting means and upon arrival of an integrated value of said oxygen mass flow rate at a predetermined value during regeneration of said filter by said regenerator means (see translation, page 3, paragraph [0016], page 6); however, fails to disclose that an oxidation catalyst is disposed upstream of the filter. Hepburn teaches that it is conventional in the art, to utilize an oxidation catalyst (26) being disposed upstream of the filter (19) in the exhaust system (see Figure 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the teaching of Hepburn in the Uehara system, since the use thereof would have improved the emission control system.

Regarding claim 2, Uehara further discloses a temperature detecting means for detecting the temperature of the filter, and wherein said regeneration end determining means determines a regeneration end of said filter in accordance with information provided from said temperature detecting means and said oxygen mass flow rate detecting means and upon arrival at a predetermined value of an integrated value of said oxygen mass flow rate from the time when the temperature of said filter has reached a predetermined temperature (see translation, page 7).

Regarding claim 3, the modified Uehara system discloses all the claimed limitations as discussed in claim 1 above, however, fails to disclose determining a regeneration end of the filter based on the integrated value of a oxygen flow rate using the claimed equation.

One having ordinary skills in the art, would have found such equations to be obvious since they appear to represent a standard means to determine an amount of soot combusted in the filter. If Applicant has any evidence as to the novelty of the above equations he should submit such in response to this office action.

Regarding claim 4, the modified Uehara system discloses all the claimed limitations as discussed in claim 1 above, however, fails to disclose calculating the oxygen mass flow rate based on a mass flow rate of intake air using the claimed equation.

One having ordinary skills in the art, would have found such equations to be obvious since they appear to represent standard means to determine an oxygen mass flow rate. If Applicant has any evidence as to the novelty of the above equations he should submit such in

response to this office action.

Regarding claim 8, Hepburn further teaches that a temperature is disposed downstream of said catalyst and input from said sensor is used as the filter temperature (see Figure 1, col. 4, lines 26-28).

Regarding claim 9, the modified Uehara system discloses all the claimed limitations as discussed in claim 2 above, however, fails to disclose calculating the filter temperature based on the temperature output from sensors upstream and downstream of the filter using claimed equation.

One having ordinary skills in the art, would have found such equations to be obvious since they appear to represent standard means to determine an accurate value of the filter temperature since a distribution of temperature is not the same along an axial direction of the filter. If Applicant has any evidence as to the novelty of the above equations he should submit such in response to this office action.

#### ***Allowable Subject Matter***

Claims 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Any inquiry concerning this communication from the examiner should be directed to Examiner Diem Tran whose telephone number is (571) 272-4866. The examiner

Art Unit: 3748

can normally be reached on Monday -Friday from 8:00 a.m.- 6:00p.m.

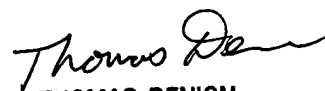
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (571) 272-4859. The fax number for this group is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 800-786-9199 (toll-free).

DT  
November 14, 2005



Diem Tran  
Patent Examiner  
Art unit 3748



**THOMAS DENION**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 3700**